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SOUTHEAST REGION

FOREST RESOURCES

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RESOURCE PLANNING TEAM

JOINT FEDERAL-STATE LAND USE PLANNING COMMISSION

PRELIMINARY DRAFT

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RESOURCE PLANNING TEAM

RESOURCES INVENTORY

SOUTHEAST REGION

FOREST RESOURCES

by

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Resource Planning Team

Joint Federal-State Land Use Planning Commission

May 1974

In view of the process which was utilized in preparing this material, users are cautioned to take cognizance of the following limitations. First, this information is primarily an extrapolation from a literature data base which is sometimes incomplete. Accordingly, in certain instances, additional primary research may be required to verify conclusions reached herein. Second, the material which follows inevitably includes subjective interpretations of existing data by one or more members of the Resource Planning Team. Consequently, it is possible that other resource professionals having comparable knowledge and expertise could reasonably come to different conclusions. For these reasons, the Planning Commission, the Resource Planning Team, and the respective agents, servants, employees, members, and independent contractors of these entities do not warrant the accuracy or completeness of the following information or that the same can be relied upon without verification through the use of data derived from other sources.

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I. Physical Description

The Southeast Region includes all of Alaska southeast of the ridgeline from Mt. St. Elias to Icy Bay, a total area of approximately 42,000 square miles or 26.9 million acres. Hundreds of islands, a fiorded mainland and numerous inlets characterize this region. Slopes rise to 3,000 feet along the coastline. The 18,008-foot Mt. St. Elias marks the highest point along the Canadian-Alaskan Border.

Land surface transportation is very limited. Only Haines and Skagway are connected by this manner. A highway provides access to the former and a railroad to the latter. The Alaska Marine Highway System and air travel provide most of the traffic in and through this region.

Major communities include Haines, Juneau, Wrangell, Sitka, Skagway, Petersburg and Ketchikan. Most Southeast communities are situated on coastal areas with the steep mountains blocking expansion inland. Growth is taking place by extending the community along the shore or bridging to favorable land across waterways. Four boroughs are located in the Southeast Region including Haines, Juneau, Sitka, and Ketchikan boroughs.

II. Land Ownership

Over 98 percent of the land is presently under jurisdiction of various federal agencies. The land ownership pattern of the South-

east Region is dominated by Tongass National Forest, which has over 70 percent of the land area within its boundaries. The various types of withdrawals authorized by the Alaska Native Claims Settlement Act as well as State Selections are listed to produce a better picture of the present situation. Many of the withdrawals will terminate and ownerships change during the next several years because of the selection authorizations to the Native Corporations and the State. Other withdrawal changes will be from d2 to one of the four national systems or to d1 for classification.

Federal Ownership - Except BLM		
National Parks		2,804,000
National Forests		16,000,000
Bureau of Sport Fisheries and Wildlife		3,500
Coast Guard		13,400
Military		1,000
Bureau of Indian Affairs		89,000
	Subtotal:	18,910,900
Bureau of Land Management		
d2 lands		2,288,000
d1 lands		1,520,000
Native withdrawal lands		
Village withdrawal		(1)1,200,000
Regional deficiency		(1) 200,000
	Subtotal:	5,208,000

(1) Dual Withdrawal; to be subtracted from grand total

State		
Selections		(1)240,000
Tentatively approved		(1) 15,000
Patented		141,000
	Subtotal:	396,000
Patented		35,000
	Subtotal:	35,000
	GRAND TOTAL:	24,549,900(2)

III. Timber Resources

Alaska's most productive timberlands are located in the Southeast Region. Recognizing the extreme importance of these timberlands, the Tongass National Forest was essentially established between 1902-1909. These 16,000,000 acres contain approximately 98 percent of the commercial timberland in the Southeast Region (See Table No. 1). The information accumulated by the USFS provides, therefore, the vast majority of data used in this report. Virtually all the published inventory data presently available is from the USFS's 60-plus years of administration. Those interested in obtaining first-hand inventory information are urged to contact the forest supervisor, Tongass National Forest.

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(1) Dual Withdrawal; to be subtracted from grand total

(2) Land and Inland Water Area; includes 1,655,000 acres of dual classified land

The western hemlock-Sitka spruce forest type dominates the commercial forest land, comprising over 95 percent of the commercial forest acres. This type includes western hemlock, Sitka spruce, and cedar.

The remaining five percent of commercial timberland area, is covered by hardwoods, mostly red alder and cottonwood.

A combination of steep rocky slopes, broad mountain drainages, glacial masses, and extensive outwash and moraines which lie within a narrow belt along the Gulf coast form a complex of land surfaces and soils free of permafrost.

Soils near timberline are shallow, coarse, loamy and well-drained. Soils on the lower slopes and high moraines are stony, gravelly, well-drained and produce the highest yields of timber. Small areas of sandy to silty soils on coastal terraces and dunes support thin stands of Sitka spruce.

Poorly drained, mucky peat soils occupy slopes and depressions in approximately 30 percent of the timbered area. These soils support some growth of western hemlock.

Prior to 1954, Sitka spruce provided virtually all the volume for the Southeastern Alaska timber industry. There was little demand for hemlock lumber even though these hemlock stands accounted for 75 percent of the total volume of the forest. The spruce types, being near tidewater, were easily accessible and were the first choice of loggers and lumbermen.

The establishment of the Ketchikan Pulp Company in 1954 provided a very major change in forest management. Hemlock came into its own as a desirable commercial species.

Generally, the better timber-producing lands are found as one goes southward along the coastal region. The Ketchikan unit of the Tongass National Forest has a higher percentage of commercial timberland -- in relationship to the total area -- than any other unit. Both the quantity and quality of timber declines north of the Ketchikan unit. The majority of the better stands of timber are found within three miles of tidewater.

The Forest Service has defined a commercial forest in terms of both volume and area. A stand of timber is considered commercial if it has a minimum of 8,000 board feet of saw timber per acre, or is capable of producing this amount, and consists of a minimum of 10 acres. The average volume per acre exceeds 30,000 board feet. Volumes range from 8,000 to over 100,000 board feet per acre.

Mature and over-mature stands of timber characterize this region. These are readily suitable for pulp manufacture and presently sustain a significant pulp operation. There are also high-quality stands of Sitka spruce and western hemlock intermixed with these pulpweed forests.

Economic factors prohibit the harvesting of many stands of excellent commercial timber. These stands lack access and are often in locations difficult to reach. Until either economics or logging technology permit, many stands will remain unharvested.

The nearly 20 million non-forest/noncommercial forest land contained within the Southeast Region must be considered in its proper relationship

with the commercial forest land. Forestry practices on commercial lands can significantly affect the non-timber producing lands. The interrelationships of wildlife, fisheries, soils, etc., must be considered in the total land and resources management program for all lands.

An analysis of Southeast Alaska's commercial forest land readily reveals an acreage imbalance between young and old growth areas (Table 4). Over 85 percent of the 4,884,000 acres of commercial forest is stocked by old-growth timber. This greatly influences any forest management program and will be discussed in somewhat more detail later.

As might be anticipated in view of the foregoing discussion, the volume of saw timber on commercial forest land is heavily weighed on favor of old-growth timber (Table 4). Of the estimated 165,900 MM board feet of standing timber, over 95 percent is contained in old-growth timber. These stands provide little, if any, growth or increase in volume. In fact, due to mortality, there is often a net decrease in annual volume per acre in the old-growth stands.

Forest management goals normally work toward the attainment of a sustained yield forest. This is commonly defined, essentially, as the volume of timber to be cut being equal to the volume produced in any given management unit. This is an important distinction from allowable cut, which the SAF defines as "the volume of wood which can be cut under management for a given period of time." It is readily apparent that the former term "sustained yield", is a relatively objective

figure while the allowable cut is quite subjective. The latter is dependent on many factors including management objectives, lumber market, and harvesting costs. Normally, the allowable cut figure is the volume desired to be cut in a given period, divided by the number of years in that period.

With these definitions in mind, one can more easily envision the significance of "the timber management plan for the Tongass National Forest", although current figures are not published. A revised report of 1963 indicates the Tongass National Forest, which, for all practical timber purposes, represents Southeast Alaska, has a sustained yield capacity of 2,213,395 M Board Feet. The allowable cut for accessible volume is 823,930 M Board Feet, while for that of inaccessible volume is 415,220 M Board Feet. It is obvious from these figures that the forest has more growing capacity than what is programmed for harvest.

The primary silviculture goal is to obtain a desirable age-class distribution of even-age stands comprised of desirable species. This will mean harvesting the old growth climax stands first. Silviculturally, this can best be obtained by clear-cutting the decadent climax stands. This practice will have to be balanced by ecological considerations to prevent or at least minimize, the adverse effects of clear-cutting.

It appears that second-growth stands at rotation age will be comprised of approximately equal volumes of western hemlock and Sitka spruce. This combination also appears to be more resistent to insect and disease attacks. Clear-cutting seems to provide the best harvesting technique for these second-growth stands.

Fire damage in the Southeast region has been very minor over the last 60 years. The very infrequent lightning strikes, heavy rainfall, and lack of slash combine to keep the fire danger to a minimum.

With the increase in logging and resulting slash, fire damage can reasonably be expected to increase. The number of forest visitors, i. e., hunters, fishermen, and other recreationists can also be expected to increase. This will bring about a corresponding increase in fire occurrence. The thin soil cover on the steep slopes will be especially vulnerable to fire damage.

Various insect epidemics have caused severe damage over the years. The black-headed budworm, hemlock sawfly and the Sitka spruce beetle all have caused great damage and timber kill.

Disease takes a heavy toll of the Southeast Alaska timber volume. The USFS estimates that one-fifth of the gross volume of merchantable timber is defective primarily because of decay. The most serious damage is caused by heart rot in overmature timber.

To summarize, this region contains, by far, Alaska's best timberlands. The climatic and edaphic conditions are exceedingly more favorable for timber growth than those of the rest of the State.

The USFS has been charged with management responsibility of virtually all commercial forest timberlands. State of Alaska land selection under the Statehood Act and selections by Alaska Natives under the ANCSA will remove a substantial volume of timber from federal jurisdiction.

However, the USFS will continue to be the dominant timber-managing agency in the foreseeable future.

The Tongass National Forest has published detailed timber management plans, by working circles, which contain more detailed and refined data for anyone interested in more information. It is beyond the scope and intent of this report to go into more detail. It is intended to summarize the highlights of timber management.

The noncommercial forest covers 6,000,000 acres, primarily muskeg. Although these stands produce no commercial timber, these stands have values which must be recognized. Their importance in wildlife management, fisheries, subsistence, and fuel has long been recognized by land managers. Tourism and recreation will almost certainly become increasingly important on these lands.

The overall non-forest forest land contained within the Southeast Region must be considered in its proper relationship with the commercial forest land. Forestry practices on commercial lands can significantly affect the non-timber producing lands. The interrelationships of wildlife, fisheries, soils, etc., must be considered in the total land and resources management program for all lands.

Some of the non-timber values have been briefly mentioned previously. It is the intent of this section to acknowledge the non-timber resources as they influence, and are influenced by, the timbered areas.

Perhaps one of the greatest potential influences on forest management is the mining activity. Under provisions of the 1872 mining law, the prospector has the right to virtually unrestricted activities, including free access, on national forest lands for exploration or mining mineral deposits. The locator can buy, for a nominal price, the land upon which a valid mineral discovery has been found. Also, the locator is authorized to obtain an additional five acres of non-mineral land for a mill site. It is quite obvious that any comprehensive land use plan is subject to activities of the mineral claimant. This, plus the difficulty in determining the valid from the invalid claims, makes the job of the forest land manager very difficult.

Since 1878, the commercial salmon fishery industry has been important to the Alaskan economy. All timber sale proposals, layout and design must take into account any possible potential damage to this vital industry.

This region provides considerable variety in big game hunting. Heading the list of importance are Sitka black-tailed deer, black bear, brown bear and mountain goat. Also found are moose and wolf. The quantity of each species varies by area and year.

Several glacial rivers drain from Canada through Alaska to the Pacific Ocean. Among these are the Unuk, Stikine, Taku, and Alsek Rivers. The Canadian drainage areas generally have very different hydrologic regimens than those in Southeast Alaska. Runoff rates are much smaller, corresponding more nearly to those in the Transition or Continental climatic zones of Alaska. The drainage areas of the streams are large.

Glacier-dammed lakes occasionally break out and cause flooding downstream. Notable examples are the Salmon River near Hyder and the Taku River near Juneau. Flood discharge rates exceeded 1,300 cfs per square mile at the U.S. Geological Survey gaging station on Salmon River near Hyder above which the drainage area is 94 square miles. Discharge of breakout floods on Tulsequah River, tributary to Taku River, have not been measured but are known to flood the lower Taku River valley.

Recreation and esthetic uses provide a great potential for Southeast Alaska. The State of Alaska, in 1970, expressed this extremely well in their Alaska Outdoor Recreation Plan:

> Few places in the Western world offer the richness and variety of outdoor recreation resources available in Alaska . . . Thus, Alaska has important assets to preserve and, unlike many other parts of the world, the opportunity to do so and to extend the recreational benefits of its natural resources to growing numbers of both residents and visitors.
>
> Rarely is a nation afforded a second opportunity to plan for the recreational use of its natural resources before commercial exploitation imposes severe constraints. Alaska, however, provides such an opportunity, and perhaps this nation's last chance to prove that compatible development of natural resources for both recreational and commercial purposes is possible . . . Alaska is in a strong position to provide the nation and the world with a place of repose, away from the hurry and pressure of life in the cities, where one may enjoy the splendor of some of the world's most spectacular scenery, and view wildlife in its natural habitat.

It is entirely possible that recreation, tourism, and esthetics will provide Alaska with its greatest resource.

Summary

Considerable potential exists for economic increase from Southeast Alaska forests. Demand for wood products is expected to increase steadily for the foreseeable future. For instance, the USFS estimates a per capita increase of 35 square feet from 1962 to 2,000.

The high-quality saw logs provide a potential for plywood production. These logs are presently being used for pulp or sent to Japan as cants. The establishment of a plywood or veneer industry would provide additional employment for Alaskaaa. Almost 90 percent of the Pacific Northwest Region's Sitka spruce volume, and 40 percent of the western hemlock volume is contained within Southeast Alaska. Over half of the Sitka spruce saw timber is contained in trees 31 inches or larger (diameter measured at 4 1/2 feet above ground level). Almost a third of the volume of western hemlock is contained in trees 31 inches or larger. These type and size trees provide a tremendous source of raw material suitable for plywood and veneer.

Southeast Alaska has been in the past, and will undoubtedly continue to be, the key timber-producing area in the State. With proper management and administration, these forests should continue to provide a perpetual yield of timber and related forest products.

TABLE 1

Land Area in Southeast Alaska, by Major Class of Land and Survey Unit
(Thousand Acres)

Survey Unit	Total Land Area	Forest Land Total	Commercial	Productive-Reserved	Unproductive	Non-Forest
Juneau (USFS)	3,833	1,653	815	6	832	2,180
Sitka (USFS)	2,433	1,740	541	-	1,199	693
Petersburg (USFS)	3,287	2,357	1,029	-	1,328	930
Ketchikan (USFS)	5,566	4,256	1,951	8	2,297	1,310
Yakutat (USFS)	796	315	276	-	39	481
Sub-Total (USFS)	15,915	10,321	4,612	14	5,695	5,594
Haines (State-Pub.)	924	226	79	1	146	698
Glacier Bay (NPS)	2,022	359	-	179	180	1,663
Public Domain (BLM)	3,334	60	29	-	33	3,274
Sub-total Non-USFS	6,280	645	106	180	359	5,635
Grand Total All Southeast	22,195	10,966	4,718	194	6,054	11,229

All figures, except those for public domain and all totals, taken from "Alaska's Forest Reserve", USFS Resource Bulletin PNW 19.

Important Note:

The area boundaries for Southeast Alaska vary by definition. The USFS includes the entire Yakataga survey unit while this report cuts the boundary at Icy Bay. This accounts for the difference in total land area as shown in Table 1 and that shown by the USFS.

The following tables were extracted directly from USFS Resource Bulletin PNW 19; therefore, the acreage totals differ from Table 1. It is felt that the information contained in Tables 2-4 provides a very representative picture of Southeast Alaska.

TABLE 2

Area of commercial forest land by major forest type, dominant species, and major survey unit, Alaska
(Thousand acres)

Major type by Dominant Species	Southeast
Hemlock-Sitka spruce:	
Sitka spruce	636
Western hemlock	2,682
Mixed hemlock/spruce	1,049
Cedar	319
Total	4,686
Hardwoods:	
Cottonwood	---
Mixed Hardwoods	198
Total	198
Total all types	4,884

TABLE 3

Area of commercial forest land by stand-size class and major survey unit, Alaska
(Thousand acres)

Stand-size class	Southeast
Saw timber stands	
Old-growth	4,238
Young-growth	242
Total	4,480
Pole timber stands	139
Sapling and seedling stands	208
Nonstocked areas	57
Total	4,884

TABLE 4

Net volume of saw timber on commercial forest land, by stand-size classes and regions, Alaska
(Million Board Feet)

Stand-size class	Total Alaska	Total	Coastal Southeast	Chugach	Interior
Saw timber stands					
Old-growth	(2)	173,827	157,764	16,063	(2)
Young-growth	(2)	10,043	7,495	2,548	(2)
Total saw timber	206,400	183,870	165,259	18,611	22,530
Poletimber stands	8,866	709	562	147	8,157
Sapling and seedling stands	92	49	10	39	43
Nonstocked areas	156	69	69	--	87
Total	215,514	184,697	165,900	18,797	30,817
Percent	100.0	---	77.0	8.7	14.3

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